Welfare (productivity) consequences of the Danish "Yellow Card" debate

Dupont, Nana; Fertner, Mette Ely; Stege, H.

Published in:
Proceedings of the 23rd International Pig Veterinary Society (IPVS) Congress

Publication date:
2014

Document Version
Publisher's PDF, also known as Version of record

O.039

Welfare (productivity) consequences of the Danish "Yellow Card" debate

N Dupont[1], M Fertner[2], H Stege[1]
[1]Department of Large Animal Sciences, University of Copenhagen, Copenhagen, Denmark,[2]National Veterinary Institute, Technical University of Denmark, Copenhagen, Denmark, nhd@sund.ku.dk

Introduction

During 2010, the "Yellow Card" programme was introduced in Denmark (1). The authorities wished to reduce the use of antibiotics (AB) in the pig production by subjecting herds with high AB usage to fines and regulations. Even before the program was instigated, the public debate made many farmers reduce the AB consumption and the overall usage dropped by ~25% in the following year. Hence, the aim of this project was to determine if this decrease had any effects on animal welfare (measured as daily weight gain and mortality) in affected grower herds (7-30 kg).

Materials and Methods

Herds with an AB consumption of >3.5 kg active compound in the year before June 2010 (1), a reduction in AB consumption of >10% the following year and >500 registered pen places for growers were randomly selected from the national database, Vetstat (2). Organic and outdoor herds, herds that had suffered severe disease outbreaks, had performed eradication programs or made any other major changes during the study period were excluded. AB consumption was calculated as gram active compound AB/pen places and as average number of daily doses given per 100 animals per day (ADD/100 animals/day) (3). Data on number of animals produced, daily weight gain (DGW) and mortality were collected for the entire study period. To test for difference between years before and after June 2010 paired t-tests were performed (significance level 95%) (SAS Enterprise Guide 4.3).

Results

53 grower herds were included in the study for mortality. 87% of these were included in the study on DWG (46/53). The 53 herds had 2922 grower pen places in average (600-11000). AB consumption decreased with approximately 50% in the year following June 2010 regardless of calculation method (Table 1). Overall DWG before and after June 2010 was 449 grams/day (std.dev 64) and 444 grams/day (std.dev 66) respectively (P=0.15). Overall mortality increased from 2.4% (std.dev 1.1) to 3.0% (std.dev 1.5) (P<0.001). Herds with an AB consumption ≥25 ADD/100 animals/day in the year before June 2010 had a significantly higher increase in mortality (62.4%) compared to herds with a AB consumption <25 ADD/100 animals/day (26.6%) (P=0.04) in the same period.

Table 1. Antibiotic (AB) consumption in the participating 53 grower herds

		Use of antibiotics		
		Average	Std.dev	P-value
Gram AB/pen place	Period 1[1]	13.2	7.9	<0.001
	Period 2[1]	6.3	3.4	
ADD/100 animals/day	Period 1[1]	19.6	12	<0.001
	Period 2[1]	9.6	4.8	

[1] Period 1: 1st of June 2009 to 31st of May 2010; Period 2: 1st of June 2010 to 31st of May 2011.

Conclusions and Discussion

The decrease in average DWG of 11 grams/day and the significant 25% increase in mortality suggest that a reduction in AB consumption may affect animal welfare, especially in herds with a high previous AB consumption. The increase in mortality was also significant in a model, which took the longitudinal nature of the data into account (PROC Mixed, SAS Enterprise 4.3). A similar study performed in finisher herds also found a significant increase in the prevalence of abscesses (52%; from 2.9% to 4.4%; P<0.001) and osteomyelitis (67%; from 0.3% to 0.5%; P<0.001) following AB reduction (4). It may therefore be prudent to consider the relevant biological context when implementing restrictive legislation on AB consumption, particularly in herds with vulnerable animals such as recently weaned pigs. To discern if the decrease in DWG is significant more data is needed, as the standard deviation in DWG was larger than expected in the original study design.

Acknowledgments

The Danish Pig Levy Fund, the Danish Ministry of Food, Agriculture and Fisheries and contributing farmers and veterinarians.

References

1. Andreasen M et al. 2012. J Agri Sci Techn A2: 412-416.
2. Stege H et al. 2003. Prev Vet Med 57(3):105-115
3. Jensen V F et al. 2004. Prev Vet Med 64(2): 201-215.
4. Dupont el al. Not yet published data.